V. Baisbrigge Fletcher.
Feb. 1933

WILLIAM WESLEY & Son,
Booksellers & Publishers,
28, Essex Street, Strand,
LONDON.

Compared with B.M. copy of 1822 edition, which contains the nineteenth Plate (frontispiece), showing upper and undersides of a Pierid Butterfly, the underside figure shown sitting on the stem of a plant. There is no Text or Description of this Plate.

Compared also with Ent. Society's copy of the 1805 edition, which is precisely similar as regards pagination and numbers of Plates (the 1805 copy also wanting the frontispiece), so that any quotations of descriptions, etc. apply equally to both editions. The 1805 edition seems to be of decidedly superior coloration and Plate 14 especially shows a very different-looking moth with a dark longitudinal streak on Fws.

Muirhead Thomson.

6. III. 1933.

A

NATURAL HISTORY

OF THE

LEPIDOPTEROUS INSECTS

OF

NEW SOUTH WALES.

COLLECTED, ENGRAVED, AND FAITHFULLY PAINTED AFTER NATURE,

BY

JOHN WILLIAM LEWIN, A.L.S.

LATE OF PARAMATTA, NEW SOUTH WALES.

Note inserted in B.M. copy of this edition:
"The text of this work was written by Alex Mc Leay.
See Freeman (J) Life of ... W. Kirby, p. 227,
& Durnford in Swinhoe (C) Cat. Eastern Lepidoptera. Pt. II, p. 549."

It is obvious from the wording of the Preface ("and all that was left for us to do was merely to define the genus, and name the individual in some cases") that the names were not given by, and cannot be ascribed to, Lewin.

Maibrisse Fletcher.
6. III. 1933.

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ILLUSTRATED WITH NINETEEN PLATES.

LONDON:

PRINTED FOR J. H. BOHTE, FOREIGN BOOKSELLER TO HIS MAJESTY,
4, YORK-STREET, COVENT-GARDEN.

1822.

TO

THE RIGHT HON. LADY ARDEN.

MADAM,

IN grateful remembrance of that goodness which gave the Author an opportunity of employing his talents, as it were, in a new world, permit me to address this small Volume to your Ladyship, as the first fruit of much labour, assured, that if any degree of merit be discernible in this performance, it will be sufficient to ensure it a favourable reception from your Ladyship, as has already been experienced by him, who must ever remain,

YOUR LADYSHIP'S

Most grateful humble servant,

J. W. LEWIN.

PREFACE.

The contents of this little Volume are Lepidopterous Insects, indigenous of New South Wales, were there collected, painted, and engraved, by the Author; and sent to London by him for publication, to furnish him with the means of returning to England, his native country, after an absence of near eight years, which he has spent almost solely in the pursuit of natural history, principally in the branches, Ornithology and Entomology; in which he has in New South Wales, and in Otaheite, made some hundred of original paintings; from which it is hoped he may, by the profits of this little first effort, be enabled to return and reap an honourable benefit, as their publication, under his ingenious hand, we flatter ourselves, would somewhat redound to the honour, reputation, and increase of those branches of the sciences in Britain. The insects here figured are new, and some of them extraordinary in their natural history, the singularity of which, with the correctness of the figures, must render this Work, we conceive, peculiarly valuable. For till this author, none has discovered, or expected to find lepidopterous insects of the families here figured, as the destroyers of timber, or the depredators of massy and hardest trees, in the way which is here made known. And it should be observed also, that the natural history, as well as the engraving, was done on the spot, and not from dry specimens, or notes still more abstruse. And all that was left for us to do was merely to define the genus, and name the individual in some cases, which we have done sometimes from the plant on which the insect was found; and for the names of those plants we make our acknowledgments to the learned President of the Lin-

nean Society, Dr. Smith, and also acknowledge the kind observations of the Secretary of the Society, Alexander Mac Leay, Esq. for whose abilities, as an Entomologist, we have the highest respect, though we cannot avoid differing greatly from him in some points.

Of the style of the publication, and the arrangement of the subject, we can only say, being well instructed in the Field of Nature, we have endeavoured to render the book useful.

THOMAS LEWIN.

TABLE OF CONTENTS.

A

NATURAL HISTORY

OF THE

LEPIDOPTEROUS INSECTS,

&c., &c., &c.

Ord. LEPIDOPTERA. Gen. PAPILIO *of Linn.*

Family PHALÆNOIDES.

CHARACTER OF THE FAMILY.

PALPI flattened and hairy, round at the ends, and advanced straight before the eyes.
TONGUE spiral, and generally long.
ANTENNÆ bent, with an oblong club terminating in a point, and frequently hooked.
They fly by day, and are properly a link between the Moth and Butterfly.

Phalænoides Glycinæ. Pl. 1.

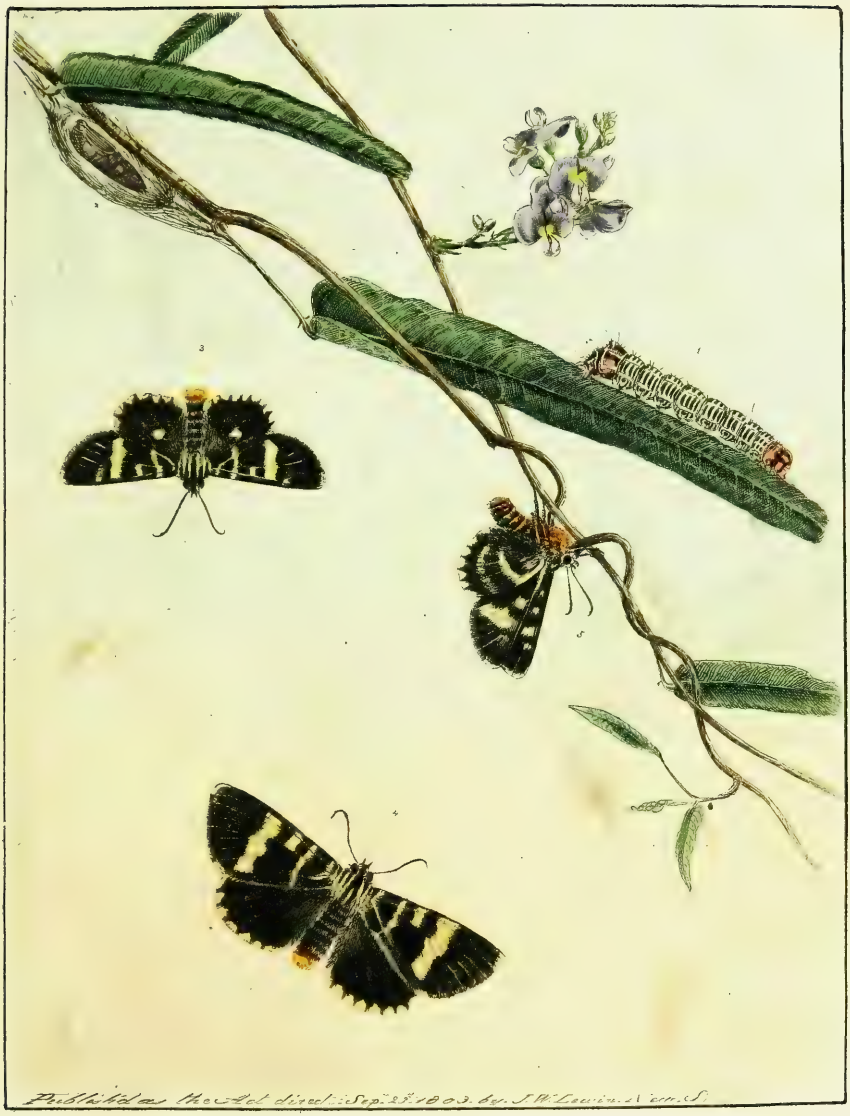
SPECIFIC DESCRIPTION.

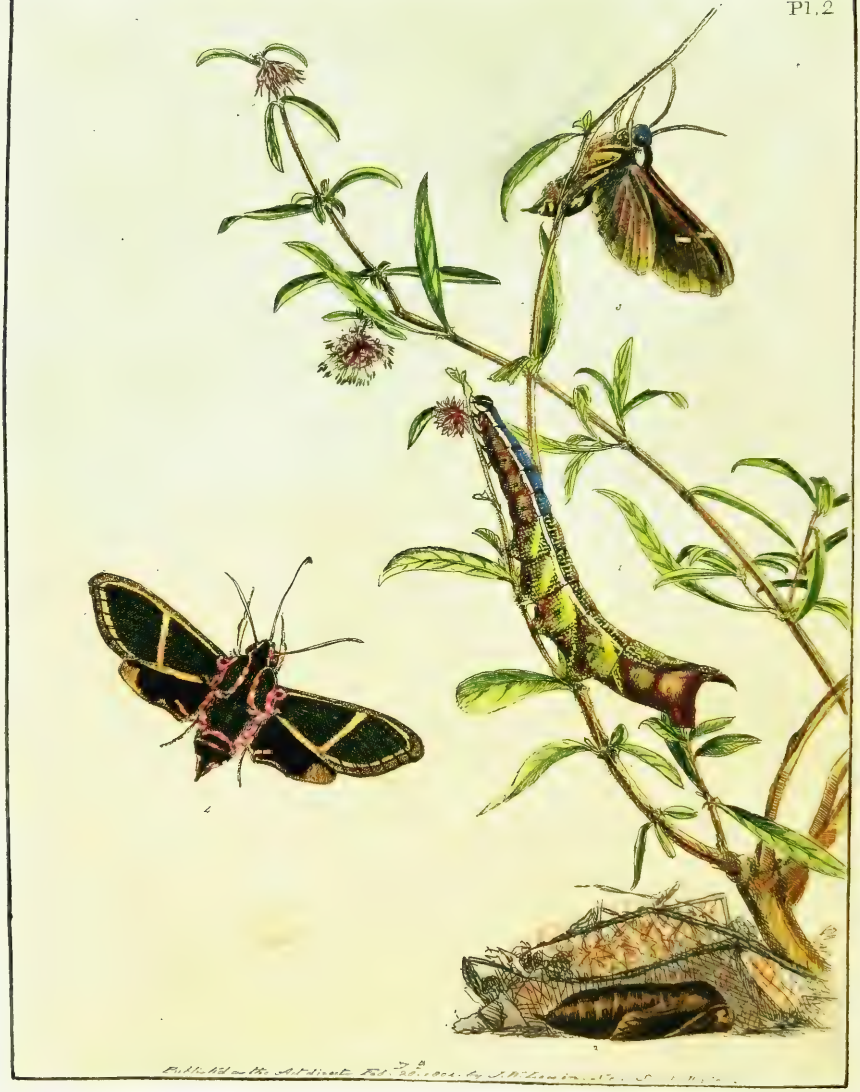
Phalænoides with black wings; on the anterior two bars of straw yellow, and several markings of the same colour on the anterior edge tinged with green: on the posterior wings a margin of the same yellow, waving into the black, and in the male a round spot of the same in the middle. Anus orange, and tufted in the male. The thorax marked with several pale yellow lines.

The larva feeds generally on the plant here figured, Glycine Bimaculata, but sometimes on the grape vine also. It changes to a pupa in January, spinning a slight web on the stem of its food under the leaves, in which state our specimen remained seventy-five days, and was on the wing in April.

It inhabits low and marshy grounds, and flies by day. The sexes differ in size, and in the males having a spot of yellow on the under wings, as shown at 3. The upper side of the female is represented at 4; the under side at 5; the larva at 1; the pupa and its web at 2.

Obs. We have introduced this new and curious insect into the Linnæan system as a family of the genus Papilio of that great naturalist, for whom we entertain the highest respect: and in giving a family name to an evidently natural division of the genus Papilio, we have no other end in view than precision and conciseness of arrangement, which may hereafter enable us to class others of the same character from that country of strange produce, New South Wales. We apprehend also, that this appellation and definition of a family will be found useful on a large scale, and comprehend a numerous class of lepidopterous day-flying insects from other parts of the world, at present not clearly defined; and are of opinion, that the noble and concise outline of Linnæus in this branch of natural history being properly filled up by families and sections, will be found by far the most complete for general and scientific use.


Published as the Act directs Sept. 25th 1803. by J. W. Lewin, Newm.S.



Ord. LEPIDOPTERA. Gen. SPHINX *of Linn.*

GENERIC CHARACTER.

PALPI turned back, short, obtuse, and hairy.
TONGUE spiral. Antennæ thickest in the middle, prismatic.
ABDOMEN large and conical generally.

Sphinx Ardenia. Pl. 2.

SPECIFIC DESCRIPTION.

Sphinx with deep olive anterior wings, surrounded by a border of buff, lilac, and chesnut colour: an even band of pale buff across the middle, having a transparent spot near the anterior margin. The thorax marked with two crescents of rosy red, two black spots encircled with the same colour on the shoulders. Posterior wings deep purple; with an indenture edged with lilac dots near the abdomen.

The larva of this singularly curious Sphinx was found feeding on the plant here figured, Embothrium Sericeum, which grows plentifully near water runs and swamps that receive the floods from forests. It changed to a pupa in November, weaving on the ground a careless net among the decayed leaves of the plant it fed on, the slender branches of which had long bent incumbent with the weight of this beautiful oppressor, devouring leaf by leaf; in which state our specimen remained twenty-four days, and was on the wing in December. It is thus shown at 4; the underside at 3; the pupa at 2; and the larva at 1.

It inhabits lowering banks of the forests near Paramatta. The female is not known.

Obs. We have here the pleasure of presenting an insect, the singular beauty of which differs in character very materially, we believe, from every species hitherto known; and we have given it the specific name of Ardenia as a slender mark of respect to the lady, to whom this work is dedicated.

Gen. SPHINX.

Sphinx Oldenlandiæ. Pl. 3.

SPECIFIC DESCRIPTION.

Sphinx with grayish wings, having an oblique dusky band, and a silver line dividing it from a similar one of pale rose colour on the anterior wings; on the posterior a wave of dusky rose colour: abdomen long, with two silver lines close to each other down the back. Sphinx Oldenlandiæ, Fabricii System. Entom. Tom. iii, p. 370, n. 44.

The larva of this insect feeds on the plant here figured, beginning first on the upper shoots, which it consumes, as well as the leaves. But it does not expose itself always in such dangerous situations, retiring when bulky to the lower and stouter stems of the plant; where it is more concealed, and therefore less likely to become a prey to it's natural enemies. The larva changed to a pupa, spinning a close web on the earth under dead leaves in March; and the moth came forth in November following.

It inhabits the low and swampy grounds near Sidney. The male is shown at 4; the under side at 3; the pupa, with half it's covering web removed, at 2; the larva at 1. The plant is the Epilobium.

Obs. We have admitted this insect, as we do not know that a figure of it has ever before been published, as well as an account of the natural history, which we receive as new, though we think we have seen the insect from the Cape of Good Hope. We are of opinion also, that it is described by Fabricius as above; though we perceive some difference, namely, a dash of black on the shoulder, and a wave in the posterior wing. He mentions it as a native of the East Indies; we therefore adopt his name of Oldenlandiæ, and remark, that it is one of the few insects of New South Wales which are also found in other parts of the world, of which description is the Papilio Cardui of Linnæus, a native of the continent of Europe, and of America, as well as of England, where it is known as the Thistle Butterfly, or Painted Lady.


Pl.3
Published as the Act directs Decem.r 20. 1803. by J.W. Lewin New South Wales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Ord. LEPIDOPTERA. Gen. PHALÆNA.

Fam. BOMBYX *of Linn.*

FAMILY CHARACTER.

PALPI generally short, and covered with hair.
TONGUE short, sometimes almost wanting, or not at all discoverable.
ANTENNÆ thread-shaped, and pectinated in the males.

Bombyx Vulnerans. Pl. 4.

SPECIFIC DESCRIPTION.

Bombyx with ferruginous anterior wings with a silvery margin, their transverse nerves rising up into little tufts of a chesnut colour, changeable in different lights: posterior wings whitish: the abdomen and thorax tufted and brown.

The larva of this singular moth feeds on the leaves of the stringy bark tree of the colonists, and has a remarkable power of darting out eight rays or bunches of little stings from as many small knobs or protuberances on the back. See the red spots, representing the protuberances on fig. 1, and the yellow circles on fig. 2, where the stings are shown expanded. By these stings it inflicts a very painful and venomous wound, darting them forth as a kind of defence when alarmed by the motion of any thing approaching it. This larva changes to a pupa in the beginning of February, fastening to the stem of a leaf, and spinning a close case in the form of an egg, which it agglutinates by the moisture of it's mouth into a hard crust of a brown colour, appearing like a sort of fruit hanging on the tree. It remains in this state twenty-two days, and is on the wing in the same month. The female is shown at 5; the male at 4; the pupa at 3; the larva with it's stings expanded at 2, and in a quiet and undisturbed state at 1. The plant figured is a tender upper shoot of the Eucalyptus.

Obs. We consider this as a very curious insect, and it's singular power of darting forth wounding stings as a property unknown in any larva of Lepidopterous Insects before observed, which has been given it, no doubt, for a defence against some formidable enemy to the larva race by all-providing Providence, designing him to live, as it were, in the face of many enemies without hiding. We have named it the Wounding Bombyx from this singular property in the larva.

Gen. PHALÆNA. Fam. BOMBYX.

Bombyx Nasuta. Pl. 5.

SPECIFIC DESCRIPTION.

Bombyx with wings of a reddish buff colour, the anterior crossed by two dark streaks, one dark dot in the middle, and a row of the same near the end of the wing: palpi stretched forward as long as the thorax in an extraordinary manner, closed, terminating in a point, and having the eyes at their base. Antennæ bent, thick, and serrated.

The larva of this singular moth feeds on the leaves of the Mimosa, which resemble those of Plantain. It conceals itself during the heat of the day on the stem of some shoot, with it's head against the body or a main branch of the tree, adhering always to the under part of the shoot in a very firm manner, and stretched at full length, so that, owing to it's colour and regular position, it is not easily distinguished from the bark. It changes to a pupa in March; spinning a white angular web or case between several leaves on the top of some shoot, the adjacent leaves of which it brings together and secures by it's silken cords. In this state it remains twenty days, and is on the wing in April, when it frequents rocky situations near Sidney. The sexes differ considerably in size, and in the richer colour and stronger marks of the male, which is shown at 3; the female at 4; the pupa and it's web at 2; and the larva, as it adheres to the shoot, at 1.

Obs. We consider this moth as singularly curious in it's head and palpi, which together with the antennæ are of such a construction, as hardly to admit the moth into the family, the character of which we have given in the preceding page. We admit it, however, from general circumstances; but should others of the same character be found hereafter, we think they would be highly worthy of being set apart as a section of the Bombyx.


Pl. 5
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Published as the Act directs May 1st 1833 by J. W. Lewin, New South Wales.


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Gen. PHALÆNA. Fam. BOMBYX.

Bombyx Lewinæ. Pl. 6.

SPECIFIC DESCRIPTION.

Bombyx with the anterior wings of the male something hooked at the tips, of a yellow red colour, and a grayish bar across, waving towards the tip, somewhat curved, and bounded by a chesnut coloured, and a black line: the posterior wings reddish and a little angular, with a double wave in the middle, and a snip near the abdomen. The female dusky gray, with a darker band on the anterior wings, and a waving line of brown near the end: and the posterior wings plain brown. The anus dusky buff colour and tufted.

The larva of this Bombyx feeds on the leaves of the plant here figured, the Eucalyptus. It's habits are singular. A great number of the larvæ spin themselves a large white web at the foot of the tree, and under this web they live in an amicable society. This web is a complete purse or bag, with many partitions or floors within, serving to shelter them alike from the heat of the sun, the descending torrent, and the attacks of divers enemies. On the partitioning webs within this purse the larvæ stow themselves, and lie inactive during the whole of the day, till sun-set; when they sally forth in troops up the trunk of the tree, swarming over every branch, and almost every twig. At sun-rise they are seen retiring to their strong hold, the works of which they regularly and unitedly extend, as they increase in bulk; until the hour of transformation arrives, when they desert the old social habitation, and separating, every individual in some convenient place spins a cone or web of a dusky colour and loose texture, in which it changes to a pupa, generally in January; and remaining in that state thirty days, the moth is on the wing in February. The female is shown at 4 and 5; the male at 3; the pupa in it's cone, at 2; and the larva at 1. They inhabit forests.

Obs. This moth is of the same class as the Silkworm, the culture of which gives rise to one of the greatest manufactures perhaps known among men; and we think, from some traits in the natural history of this insect, it might perhaps outstrip in utility the silkworm at present cultivated tenfold. If any ingenious mechanic could find out a mode of spinning a thread from a fluff silk, or a web of the above description, here is an insect, the larvæ of which, living in societies, spin a white and extensive fabric in a way and situation convenient to the hand of man; who, after they had been plundered of the first, would spin again and again, so that the silken web might be gathered, perhaps to advantage, several times in a week, which is not the case with the cultured silk-worm, which spins but once, and then a small cone only.

Gen. PHALÆNA. Fam. BOMBYX.

Bombyx Exposita. Pl. 7.

Bombyx with reddish brown wings; the anterior having a band something darker, bounded on either side by an irregular line of black edged with white; a similar line toward the extremity forming a second band, lighter in colour, and a white spot in the middle of each; the posterior wings plain brown. The female is more dusky than the male; the antennæ pectinated to the extremity in the male.

The caterpillar or larva of this little Bombyx is found feeding on the clustering leaves at the extremity of the shoots growing on the top of the casuarina, or she oak of the colonists. When not feeding it retires to the stem of the shoot, where it is somewhat concealed from the resemblance of it's wavy sides and ridgy back to the bark of those shoots; and when it advances to feed, it is always to the end of the most extreme leaf, which it devours to the base, and then attacks another in the same way, exposed to the agitation of the lightest breath of wind. Yet in such an exposed situation it goes through all it's changes, and at last spins a close cone or case of a yellowish colour, almost at the extremity of one of those narrow leaves, securing it by extended threads carried out from either end of it's cone, aided by a line or two fastened to an adjoining leaf. This it does generally in the beginning of February, remains twenty-two days in the pupa state, and is on the wing in the same month. The male has a much larger abdomen than the female, with short dapper wings, while those of the female are more extended and much darker, as shown at 4: the male is figured at 3; the larva, as it feeds, at 1; and the pupa in it's cone, in the exposed manner before mentioned, at 2. This Bombyx inhabits she oaks growing in moist places, about the heads of which the moth plays on the wing.

Obs. We have named this Bombyx from the exposed manner of it's life in the pupa and larva state.

Pl. 7

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W. Hewitson on the Natural History of the Lepidopterous Insects of Britain.

Gen. PHALÆNA. Fam. BOMBYX.

Bombyx Tristis. Pl. 8.

SPECIFIC DESCRIPTION.

Bombyx with yellow brown anterior wings, having a large earlike marking of black near the anterior edge, a row of white spots near the end, and a row of yellow on the margin: posterior wings dark brown, with a yellow fringe: abdomen checkered with several rows of yellow marks. The male with several angular dashes of white on the anterior wings; anus tufted and yellow in both sexes.

We found the larva of this moth feeding on the plant here figured in the month of January, the tender shoots of which it quickly strips of their little foliage, and being a quick and ravenous feeder, soon gives the upper shoots of this pretty shrub the appearance of so many naked branches, blighted and decayed. It changes to pupa in February, spinning a loose case of a brownish colour under a shoot of the shrub it fed on, gathering some leafy twigs to its disguise, which it secured by webbing them together. In this state it remained near a month, and the moth was on the wing in March. The female is shewn at 4; the male at 3; the pupa in its spinning at 2; and the larva at 1.

It inhabits the rocks near Sidney, where the shrub figured is found growing in little bushes, it is perhaps the Pultenœa Villosa of Willdenow.

Obs. We have seen some specimens of the male of this Bombyx without those embellishing white marks on the anterior wings as described above, and shewn in the figure, being altogether more dusky.

Gen. PHALÆNA. Fam. BOMBYX.

Bombyx Banksiæ. Pl. 9.

SPECIFIC DESCRIPTION.

Bombyx with purplish lead-coloured anterior wings, having several marks of black, and freckled here and there with white and orange dots, and several clouds and dashes of the same: posterior wings plain brown and glossy: thorax black, with two white patches near the head: abdomen orange red: tail black. Male much lighter in colour, with the posterior wings whitish and silvery; and its antennæ pectinated at the base.

The larva of this bold Bombyx we found on a branch of the Banksia figured, which is its common food, and when near transformation it was of considerable bulk, very showy, and in general a great devourer. It changed to pupa in February, spinning on the surface of the earth a slight web or cell, and collecting about to its disguise some fragments of earth and leaves. In this state it remained thirty-six days, and was on the wing in March. The female is thus shewn at 4; the male at 3; the pupa, with half its cell removed, at 2; and the larva at 1. This moth inhabits low and shrubby Banksia trees near Sidney. The plant is the Banksia Ilicifolia, or a variety of Integrifola.

Obs. We have named this fine insect after the plants on a species of which it feeds, it therefore stands, as well as those plants, a memorial of the great patron of natural history in Britain, Sir Joseph Banks, who, if we mistake not, gave his name to a tribe of them when he visited the country now called New South Wales.

Pl 9

Published as the Act directs 1st Jan.y 1806. by J. White Covent Garden London


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Fam. BOMBYX. Sect. CRYPTOPHASA.

CHARACTER OF THE SECTION.

PALPI curved up before the eyes, divergent, round and terminating in a point.
TONGUE short, or not at all discoverable.
ANTENNÆ filiform, in the males pectinated, and terminating in a thread at the extremity.
WINGS smooth, and generally glossy.

Cryptophasa Irrorata. Pl. 10.

SPECIFIC DESCRIPTION.

Bombyx Cryptophasa with dusky gray anterior wings, thickly speckled with brown and white dots, a conspicuous ear-like mark, and an angular patch of dark dots near the shoulder. Posterior wings dark, with a silvery margin.

The ova of this moth being deposited on the bark of the Casuarina figured, where some branch shoots from the stem; the larva, when bred, enters immediately into the bark, boring downwards a cylindrical cell to the centre of the stem, which it increases as it grows in bulk, and uses as a retreat and dwelling-place, weaving over its entrance a convex covering, in which is interwoven the ends of leaves together with some of its excrement. See fig. 5. This covering is fastened securely at the upper end, while the lower is left in such a manner that the larva can pass and repass at pleasure. After sun-set it goes in search of food, which it conveys, a leaf at a time, to its dwelling, where it is deposited by being dragged part down the cell: thus the larva proceeds during the whole night, and on the approach of day retires with precipitation to its retreat, where it lies with its head towards the entrance, feeding on the leaves thus provided, and never ventures out during the day. In this retreat the larva also changes to pupa, in January; spinning no web, remains in that state fourteen days, and the moth is on the wing in February. The male is shewn at 3; the female 4; the larva at 1; the pupa in a section of its dwelling when in the larva state, at 2; and the covering over the entrance, shewing the ends of the leaves the larva has provided, at 5. This species of Casuarina is found growing in barren forests, where also the moth inhabits.

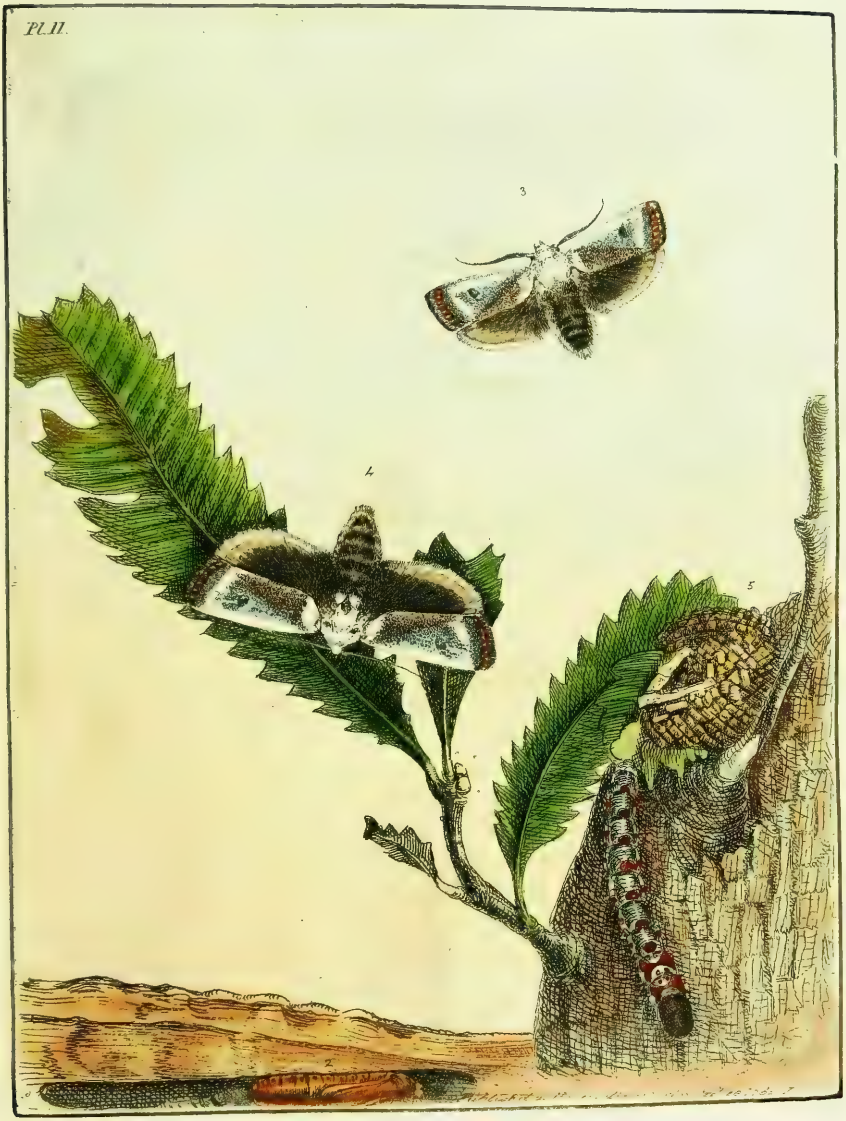
Fam. BOMBYX. Sec. CRYPTOPHASA.

Cryptophasa Albacosta. Pl. 11.

SPECIFIC DESCRIPTION.

Bombyx Cryptophasa with silvery gray anterior wings, the shoulder, thorax, and a broad margin on the anterior edge, of a silvery white; a row of angular hazel coloured marks on the end, with a faint ear-like mark, and a dusky dot in the middle of the wing. From the shoulders runs an oblique cloud of chocolate dots or little tufts. Posterior wings brown, with a broad silvery white margin and fringe.

This beautiful Bombyx is an inhabitant of the Banksia Serrata, and is a provident insect in the larva state, like the foregoing. Our specimen had formed a deep cylindrical cell in a large stem of the above-mentioned tree, at the setting off of a branch, where it had bored into the main wood; sallying out only by night, and bringing to its dwelling whole leaves of the broad foliage of this tree, with dexterity and great labour, exhibiting many marks of sagacity in its progress, and when it arrived at the entrance of its retreat, it raised up the covering with its hinder parts, and slipped down its cell backwards, dragging the leaf after it, the extreme end of the stalk of which it held artfully in its jaws, and did not quit it till it was safely and almost wholly within its cell, where it fastened it down, together with the covering of the entrance by a web. On leaves thus provided the larva feeds at leisure and in security. It changes to pupa within this cell or dwelling in January, making no web, remains thus thirty days, and is on the wing in February, when it frequents the tops of lofty trees. The male is shewn at 3; the female at 4; the larva at 1; the pupa in a section of its cell at 2; and the covering over the entrance at 5, where the larva is seen just going forth from its dwelling.


Pl. II.
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Fam. BOMBYX. Sec. CRYPTOPHASA.

Cryptophasa Rubescens. Pl. 12.

SPECIFIC DESCRIPTION.

Bombyx Cryptophasa with yellowish clay-coloured anterior wings, the male having a lighter marking part down the anterior margin, an ablong mark of the same near the shoulder enviroined with red: anterior wings of the female pale, and tinctured with rose colour: posterior wings orange-yellow: abdomen with a square mark of red at the base: the whole insect smooth and glossy.

This is a noctivagant, and provident insect in the larva state; its habits and manners differ little from the preceding species: our specimen had formed a lodgment in the stem of the Mimosa Ensifolia, as shewn in the plate, having its entrance secured by a covering fabric of excrement, which it webbed down close when within, but left unfastened the leaves it had brought for food, in its nightly excursions. The leaves of this tree are lanceolate, and of such a length, as to preclude the possibility of being taken wholly within, the greater part of the leaf therefore is left out, and the larva hawls them in gradually as he consumes them: being full fed it changes to a pupa within this dwelling-place. Remains in this state thirty-eight days, and is on the wing at the end of February, when it inhabits banks of rivers, ponds, and deep gulleys or abrupt valleys; in which situations those trees are also found. The larva cutting off a leaf is shown at 1; the pupa in the wood at 2; the female moth at 4; and the male at 3.

Obs. On the stem of the tree figured in the plate is seen a round hole, and a scar below it, the work of some predecessor of this wood-boring moth. It is thus that trees have their trunks and timber perforated and exposed to bleedings and decay, by a tribe of seemingly insignificant insects, in New South Wales.

Fam. BOMBYX. Sec. CRYPTOPHASA.

Cryptophasa Pultenæ. Pl. 13.

SPECIFIC DESCRIPTION.

Bombyx Crytophasa with silvery white wings, three black spots in the middle of the anterior, and a row of the same colour at the end. Posterior wings in the male black, in the female white, with a margin of black angular marks. Abdomen with a square mark of clear red at the base. The whole insect smooth and glossy.

The larva of this delicate moth, which we have named from the plant, is also provident, having a dwelling, to which it conveys tender shoots of the plant its food, in the stem of which our specimen had made its retreat by boring downwards a cylindrical chamber in the centre of the stem, having the entrance arched over with a fabric of web and excrement, under which the larva having taken its food in its nightly excursions, feeds thereon during the day in secret security; where also it changes to a pupa, in February, remains in that state thirty-one days, and the moth is on the wing in March; and then inhabits forests. The female is shown at 4; the male at 3; the pupa in a section of its dwelling at 2; and the larva at 1. The plant is the Pultenœa Villosa of Willdenow.

Obs. All the larvæ of the section Cryptophasa, which we have figured, seal themselves in by an agglutinated covering across the cell or chamber, when they transform to pupæ; through which, however, the moth can force from below: yet it is a strong bulwark against external foes, and effectually supplies the purposes of the old covering at the mouth of the cell, which falls off soon after the larva's final retirement. We have named the section Cryptophasa from the secret and secure manner in which this new and evidently natural division of moths live in the larva state: reflecting on the singularity of which we are struck at the wonderful means of self-preservation which the great Author of nature has bestowed on different members of the animal creation; among which we know insects of every country abound with examples. Our author tells us, the great enemy of which those larvæ seem so cautious, is the mantis, or walking leaf, which abound in new South Wales, devouring multitudes of larvæ in the day-time. He also tells us the natives of that country seek those wood-boring caterpillars as a delicious article of food, climbing high trees, and searching for them with great labour.

Pl. 13.

Gen. PHALÆNA. Fam. NOCTUA.

Sect. CRYPTOPHASA.

FAMILY CHARACTER.

PALPI, somewhat flattened, a little inclined upwards and covered with hairs.
TONGUE spiral, generally of considerable length.
ANTENNÆ a simple thread in both sexes, but sometimes a little woolly in the male.
They fly and feed for the most part by night.

CHARACTER OF THE SECTION.

PALPI curved upwards before the eyes, divergent, round and terminating in a point.
ANTENNÆ thread shaped, in both sexes.
TONGUE spiral, short, and sometimes scarcely discernable.

Cryptophasa Strigata. Pl. 14.

SPECIFIC DESCRIPTION.

Noctua Cryptophasa with light wainscot coloured wings; anterior with a brown stripe from the shoulder to the end. Posterior wings with a broad silvery fringe: the whole insect silvery, especially near the stripe.

The larva of this little Noctua is provident, and wood-boring: our specimen had entered a sappy branch or slender stem of the Banksia Serrata, where it had formed a cell, having its entrance barricaded with a fabric of interwoven web and excrement; under which the larva conveys its food, by nightly perambulations, that is, so much of a leaf of the above tree as it can conveniently convey away at a time, and which it forces part down its cell, where, in security, it feeds and sleeps during the whole day. Within this dwelling it transforms to a pupa, generally in January; remains twenty-two days in that state, and is on the wing in February, and is then found on Banksia shrubs near Sidney. The male is figured at 3; the female at 4; the pupa, with the wood laid open at 2; the larva at 1; and the barricado at 5.

Gen. PHALÆNA. Fam. NOCTUA *of Linn.*

Sect. LITHOSA.

CHARACTER OF THE SECTION.

PALPI somewhat recurved, and flattened at the base.
ANTENNÆ a slender thread in both sexes, generally of considerable length.
WINGS, the anterior, long, narrow, and enwrap the abdomen when at rest.

Lithosa Replana. Pl. 15.

SPECIFIC DESCRIPTION.

Noctua Lithosa, with the anterior wings of a lead colour, having a yellow buff coloured marking part down the anterior edge; the female with a patch of the same colour in the middle of the wing: posterior wings yellow buff and clouded at the tips: a red collar, and dark thorax, with an angular spot of buff thereon in both sexes.

This species of Noctua Lithosa inhabits high rocks and craggy cliffs: the larva feeds on a species of lychens, growing on the shadowed parts of such places; and when near transformation, retires to some shelving fragment, under which it spins a white silken web, and there changes to a pupa, far removed from any annoyance: the moth is produced in a few days, and is on wing in January: the female is figured at rest at 5; flying at 4; the male at 3; the pupa in its silken purse at 2; and the larva at 1. It is found near Sidney.

Obs. This insect differs from the Noctua Complæna described by Linnæus, especially in the clouded tips of the posterior wings.

Pl. 15.


1
3
4
5
6

Gen. PHALÆNA. Fam. NOCTUA *of Linn.*

Sect. HEPIALUS.

CHARACTER OF THE SECTION.

PALPI turned up, and set with hairs.
ANTENNÆ setaceous, bent, and sometimes a little serrated in the male.
ABDOMEN stretched out beyond the wings generally.

Hepialus Ligniveren. Pl. 16.

SPECIFIC DESCRIPTION.

Noctua Hepialus, with yellow green anterior wings, divided into two patches by a waving band of a faint ferruginous colour intersected by dusky, and some sharp marks of scarlet; some short marks of the same colour on the anterior edge; posterior wings reddish flesh-colour; abdomen long and dusky at the extremity.

The larvæ of this beautiful species of Noctua Hepialus feeds in a more singular way than any larvæ we have yet treated of. It forms a lodgment or chamber in the centre of a stem of a species of Casuarina, or the she oak of the colony, and feeds on the bark and sappy wood directly about the entrance, eating round the stem, and carefully hiding its dilapidations by weaving fragments of wood and bark which it gnaws off, in a strong web; forming at once a fortification and disguise of considerable bulk and thickness round the stem, under which, in a winding cylindrical passage, the larva constantly keeps its body while at work, alternately gnawing and weaving; but retires to the chamber in the stem to repose. Across the mouth of this chamber it spins a close web, and changes to a pupa in January; soon after which the concealing fabric, to form which the larva took such pains, falls away. It remains in the pupa state about twenty-five days; when by a strong vertical motion of its joints and serrated rings, the pupa forces the web, and the moth is produced, generally in February. The moth is shown at rest at 4; with the wings expanded at 3; the larva, in a section of its chamber and disguise as mentioned above, at 1 and 6; the pupa at 2.

It inhabits low she oaks in forest lands.

Obs. There is a general unity of colour and delicate beauty in this insect, which no figure can convey. We think it the most beautiful species we have seen of that tribe of moths sometimes known in England by the name of Swifts.

Gen. PHALÆNA. Fam. TORTRIX *of Linn.*

FAMILY CHARACTER.

PALPI dilated in the middle, somewhat naked.
ANTENNÆ setaceous, simple.
WINGS, the anterior, somewhat rounded at the base of the exterior margin.

Tortrix Australana. Pl. 17.

SPECIFIC DESCRIPTION.

Tortrix with greyish anterior wings, having two half bars of brown on the anterior edge, with wavy marks of a dusky colour over the whole wings: posterior wings darker, more particularly in the male.

This Tortrix is of that tribe, the larvæ of which live in clusters enveloped in webs, which they spread over the plant as they proceed. Our specimen we found acting thus on the plant figured on the plate, spreading over it's foliage a white web, under which they retired for shelter. There were a number of larvæ to one web, in which they continued to live together till near the time of transformation, when they separated, and each individual sought a convenient situation, and bringing several leaves together, it spun a web as shewn at 2; remained fourteen days in the pupa state, and was on the wing in March: the male is shewn at 4; the female at 5; and the pupa at 3.

It inhabits swampy situations near Sidney, where also the plant is found growing, which is perhaps Embothrium Speciosissimum.

Pl. 17.

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Gen. PHALÆNA. Fam. TINEA *of Linn.*

FAMILY CHARACTER.

PALPI four, the anterior pair absolute, the posterior pair advanced forward with a curve.
TONGUE spiral and short.
ANTENNÆ setaceous.

Tinea Cossuna. Pl. 18.

SPECIFIC DESCRIPTION.

Tinea with deep purple wings, the anterior covered with large silver spots, and turned up a little at the tips: posterior wings brownish, with a yellow fringe; abdomen long and silvery.

I found several of the larvæ of this Tinea in a decayed stump of the grass tree of the colonist, in which they had bored and formed long cylindrical tunnels of web in divers directions, in which the larva shelters, feeding on the surrounding wood, and also changes to a pupa, without any farther preparation than repairing to near the entrance of those tunnels. When near perfection, the pupa, by a rotative motion and the help of its serrated joints, forces itself nearly out of the wood, and the moth springs forth, leaving the exuviæ or hull of the pupa sticking in the orifice, by which the larva had entered into the wood, as figured at 4, after remaining in the pupa state near eighteen days. The male moth is shown at 6; the female at 7 and 5; the larva at 1; the pupa, taken out of its tunnel web, at 3; and the tunnel or passage in which the larva feeds at 2. It inhabits decayed wood on the rocks south of Sidney.

THE END.